Amendments to the Claims:

1. (Cancelled)

2. (Currently Amended) [[A]] The method as claimed in claim [[1]] 10, wherein the ~~first tomography method is a~~ nuclear medical ~~tomography method, notably~~ technique includes SPECT or PET.

3. (Currently Amended) [[A]] The method as claimed in claim [[1]] 10, wherein the ~~selection of the image region~~ segmenting step is performed by ~~means of~~ an automatic segmentation ~~method~~ routine.

4. (Currently Amended) [[A]] The method as claimed in claim [[1]] 10, wherein ~~the image reconstruction~~ reconstructing the segmented first image data set is carried out by way of iterative backprojection.

5. (Currently Amended) [[A]] The method as claimed in claim 4, wherein the ~~calculation of the image consists of the initial calculation of an image by~~ iterative backprojection ~~of the image data to be imaged of the first image data set, the following steps~~ includes:

(a)[[-]] numerically forming ~~formation of~~ an iteration image data set from the calculated image,

(b)[[-]] ~~determination of the~~ determining a difference between the first image data set and the iteration image data set,

(c)[[-]] ~~calculation of an iteration image by addition of~~ adding the difference to the ~~calculated~~ segmented first image;[[,]] and

(d)~~the~~ iteratively repeating ~~repetition of these~~ steps (a), (b), and (c) ~~for the calculated iteration images~~ until at least one convergence criterion is satisfied[[,]] ~~that is, notably the difference dropping below a predetermined convergence value~~.

6. (Currently Amended) A device for ~~the~~ selective imaging of body structures, which device includes

[[-]] first tomographic image data acquisition means for the acquisition of a first image data set,

[[-]] second tomographic image data acquisition means for the acquisition of a second image data set, which second tomographic image data acquisition means have a resolution which is higher than that of the first tomographic image data acquisition means,

[[-]] backprojection means for image reconstruction of an image from the first image data set, and

[[-]] selection means for selecting, by means of the second image data set, ~~the~~ a portion of the first image data set to be ~~imaged~~ reconstructed into a first tomographic image, ~~characterized in~~ wherein the portion of the first image data set is situated in a selected image region such that the backprojection means co-operate with the selection means in such a manner that the first tomographic image is calculated exclusively from the ~~image data~~ portion of the first image data set which are situated in the selected image region.

7. (Currently Amended) A tangible computer ~~program~~ readable medium which includes programming ~~means~~ for making a computer carry out the method claimed in claim [[1]] 10 when the computer program is executed on a computer.

8. (Currently Amended) A method for selectively imaging body structures, comprising the steps of:

using a first tomography method to acquire a first image data set from a first spatial region;

using a second tomography method to acquire a second image data set, the second tomography method having a higher resolution than the first tomography method and the second image data set containing image data that at least partly coincides in space with image data of the first image data set; and

reconstructing the second image data set into a second image;

segmenting the second image to define a selected image region;

segmenting the first image data set in accordance with the selected image region segmented from the second image to define a segmented first image data set;

reconstructing an image from the first image data set[[;]] ~~wherein data from the first image set used in the reconstructing set is selected using the second data set~~.

9. (Currently Amended) The method ~~of claim 8,~~ for selectively imaging body structures, comprising the steps of:

using a first tomography method to acquire a first image data set;

using a second tomography method to acquire a second image data set, the second tomography method having a higher resolution than the first tomography method and the second image data set containing image data that at least partly coincides in space with image data of the first image data set; and

reconstructing an image from the first image data set;

wherein data from the first image set used in the reconstructing set is selected using the second image data set;

wherein the reconstructing step further comprises the steps of:

selecting a region to be imaged from at least one region represented in the second image data set; and

calculating the image reconstruction from image data in a region represented in the first image data set that corresponds to the selected region represented in the second data set.

10. (New) A method of selecting imaging body structures comprising:

acquiring a first image data set from a first spatial region with a tomographic nuclear medical imaging technique;

acquiring a second image data set from a second spatial region with a second tomographic imaging technique, the first and second spatial regions coinciding at least partially in space;

reconstructing the second image data set into a second image;

segmenting the second image to define a segmented second image;

forward projecting the segmented second image to form a segmented second image data set;

associating the segmented second image data with with the first image data set to form a segmented first image data set;

reconstructing the segmented first image data set into a segmented first image.

11. (New) The method as claimed in claim 5, wherein the convergence criteria includes the difference dropping below a predetermined convergence value.

12. (New) The method according to claim 10, further including:

reconstructing the first image data set into a first image;

registering the at least one of: (1) the first and second images and (2) the first and second image data sets.

13. (New) The device as claimed in claim 6, wherein the selecting means includes:

an automatic segmenting means which segments a second image reconstructed from the second image data set, the selected portion of the first image data corresponding to the segmented region of the second image.

14. (New) The device as claimed in claim 6, further including:

registration means for registering the first image data set and the second image data set.